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Studies in Black Disease

I. The Occurrence of the Disease in Sheep in the North of Scotland

By

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The purpose of this paper is to record the existence in this country of infectious necrotic hepatitis in sheep; to delineate the area in which the disease has been found, and since the disease is fairly endemic, to describe for the benefit of clinicians the nature of the disease, the mechanism of infection and some aspects of clinical diagnosis.

Black disease of sheep has been known to exist in Australia since 1876. Dodd (1918-21) working in New South Wales was the first to show the specific identity of the disease. He established the nature of the hepatic lesions, demonstrated the association of a bacillus with these lesions and expressed the opinion that the disease was a toxaemia with an acute course. Albiston (1927) isolated an anaerobic bacillus which he considered to resemble *Cl. oedematiens* (*Weinberg*). Turner (1930) finally demonstrated the true nature of the disease, showing it to be a result of a bacterial infection and parasitic infestation. Therefore, in Turner's own words, "Black disease is an acute infectious disease of sheep, and occasionally bovines, caused by localized infection of the liver, in areas of necrosis, with *B. oedematiens*, usually alone, but in rare cases associated with certain other anaerobic organisms, and apparently always associated with invasion of the liver by immature wandering liver flukes."

Clinical Observations

Because the disease is associated with the presence of liver fluke infestation it is obvious that such factors as the type of country, method of management and the general state of nutrition will have an important bearing upon its incidence. Our investigations, so far, have revealed the disease only in the County of Caithness

On the majority of farms in Caithness a breeding flock is maintained and few sheep are brought in. The predominant breed is, of course, the north country Cheviot and usually pure-bred flocks are maintained although in a few instances a Border Leicester tup is kept and half-bred animals are reared from the gimmers whilst the ewes are tupped with a Cheviot ram. The farms vary in size from 50 acres to 2,000 acres and are constituted generally on the principle of in-bye rotational grazing and arable ground with extensive outruns of rough pasture. The usual practice is to feed the ewe stock on turnips, hay and oats during the winter months on the in-bye land where they remain throughout lambing until weaning time when the ewes and gimmers are turned out to rough pasture. Overstocking is common throughout the area in spite of the expansion of ploughing up arable land. Caithness is as a whole relatively flat and carries vast areas of peaty moorland. The soil varies from sandy near the coast with a *p*H of 7·4 to heavy peaty soil inland with a *p*H of 4·5. Generously sprinkled throughout the area are remnants of flag-stone quarries; around these, marshy patches are found in abundance, and from them overflow drainage is generally on the surface of the soil to ditches, burns and streams. In addition the county is well provided with lochs of varying size, many of which lie unfenced in the moorland over which the sheep graze. Boggy patches are of course plentiful in the late autumn and winter. Fencing, where it exists, is not of the conventional type. The most prevalent method is to erect fences of the flat slabes of Caithness flag-stone by the simple process of standing them on end in the ground. Consequently around these fences in low lying ground small pools of water are likely to form. The snail *L. truncatula* abounds in these places described and it is further encouraged by the rank overgrowth of vegetation on the sides of the ditches which drain the land.

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1. EFFECTS OF SEASON AND CLIMATE

Our observations have shown that mortality from the disease commences usually towards the end of September when the ewe flocks are returned from the rough pasture to the in-bye grazings, and the incidence of the disease rises steadily until late October, and continues thereafter sporadically, until late December. Although no exact information is, as yet, available on the precise effect of climate on the disease two striking observations have been made by us in our investigations. The first is that the advent of a sudden "blackfrost" or a heavy snowfall brings about an abrupt cessation of the disease and secondly that a mild autumn is associated with a high incidence of the disease. The first observation is similar to the experience of Turner (1930) who noted the sudden drop in the incidence of the disease on the onset of heavy frost.

2. BREED, AGE, SEX

In our investigations no evidence of breed susceptibility has been observed. The disease has been noted in pure-bred Cheviots, cross-bred, and Border Leicester sheep. Within our knowledge no hogg or lamb has been known to be affected with the disease. The disease so far has been encountered only in sheep three to five years old. Sex appears to have no influence upon the incidence of the disease as cases have been observed in rams.

3. STATE OF NUTRITION

A striking feature of the disease in our experience is that only animals in the best physical condition are affected. Breeders are emphatic in their opinion that a lame sheep, for instance, will not die of the disease. This point is so obvious that farmers have attempted to control the disease by returning the sheep to the rough pasture but with little success.

4. CLINICAL SYNDROME

One of the outstanding features of the disease is the rarity with which one observes a sheep ill. Flockmasters with experience of the disease affirm that it is very common to inspect the sheep in the afternoon and find them apparently healthy and to return in the evening to find two or three dead of the disease. This is an important clinical feature and in our opinion is one which can be of great use in distinguishing between acute fascioliasis and black disease. The symptoms observed by us conform very closely in detail with the classical clinical description given by Turner (1930).

The first sign of the disease is a tendency for the affected animal to lag behind the flock. In an hour or two or even less the sheep lies down upon its sternum. Sternal decubitus is quite a characteristic symptom. Rumination usually ceases and the animal quickly becomes disinterested in all the movements around it. Usually the combined efforts of the shepherd and his dog fail to produce any response. If a sudden noise, *e.g.*, the barking of a dog, supervenes after a period of quiet the sheep will often show a fair degree of hyperaesthesia of the head and ears in the form of a spasmodic twitching which gradually subsides. Throughout the whole syndrome there is a complete absence of pain. Occasionally the animal may attempt to stand but if successful sinks down in a few minutes to the sternal position. The respiratory efforts gradually become more shallow and frequently the most obvious indication that the animal has died is the cessation of respiratory movement. The temperature rarely rises very high and when the animal is in the recumbent state falls to about 100° F. After death the animal usually remains in the sternal position and it is not until the distension of the body with gas due to putrefactive organisms that the carcase rolls over on its side.

If one is able to observe an animal during the period of illness the clinical syndrome is such as to afford a fairly reliable guide to diagnosis. It must be stressed, however, that the great majority of cases are observed after death. In death, however, there are characteristic signs which are worthy of note. If observed shortly after death the animal appears as if asleep; there is no evidence of struggling on the surrounding grass. On the other hand, the rapidity with which the carcases decompose is a factor of importance in diagnosis.

Post-mortem Findings

In all, 30 animals have been examined *post mortem*; of these, ten were examined 30 minutes to four hours after death, 15

between four to twelve hours and five between twelve to 24 hours.

Immediately after death there appears a frothy discharge from the mouth and nostrils. On incision of the skin over the sternum a varying amount of subcutaneous oedema is observed. In certain cases this is palpable prior to incision. When the skin is removed there is a marked venous engorgement in the immediate subcutaneous tissues. In some cases the gelatinous exudate is evident between the layers of the abdominal muscles.

Thorax.—The thoracic cavity usually contained a varying amount of clear, coloured fluid. The lungs showed little departure from the normal.

Heart.—In all our *post-mortem* examinations this organ showed constant pathological change. The pericardium itself did not appear to be altered but the sac was distended with a clear, colourless or straw-coloured fluid. In our *post-mortem* examinations the amount of fluid recovered varied from 40 ml. to 250 ml. If some time had elapsed between death and *post-mortem* examination the fluid was coagulated or showed numerous opalescent flocculi. The epicardium showed little change but in the majority of cases the endocardium of the left ventricle revealed a haemorrhagic patch of varying size. On incision this haemorrhage extended into the myocardium.

Peritoneal Cavity.—On opening into this cavity a varying amount of fluid was constantly found. The fluid was usually clear, colourless or straw-coloured and averaged approximately 500 ml. On standing this fluid overnight in a tall glass, a soft opalescent clot formed which occupied about one half of the glass measure. In the majority of our *post-mortem* examinations the parietal surface of the peritoneum was intensely injected and often showed large ecchymoses. The visceral peritoneum of the rumen, reticulum, omasum and abomasum showed a varying degree of congestion of the blood vessels. In a few cases the sternal oedema extended into the musculature of the diaphragm.

Alimentary Tract.—No abnormality was observed on the epithelial surfaces of the rumen, omasum and reticulum.

Abomasum.—The appearance of the mucous surface of this organ showed considerable variation.

Petechiae were commonly observed. In some instances the whole mucosa was thickly studded with punctiform haemorrhages. The most constant change was observed at the pylorus in the form of a ring of intense localized inflammation. In a few instances small areas of erosion were observed.

Small Intestine.—The appearance of the mucosa appeared to vary with the time which elapsed between death and *post-mortem* examination. In those cases examined within four hours after death little change was apparent to the naked eye. As the time increased patchy congestion and reddening of the surface was observable.

Large Intestine and Caecum.—These organs showed little variation from the normal.

Liver.—The most striking pathological changes were observed in this organ. It showed generalized congestion and was of a dark brown or bluish colour. The capsule was generally normal in appearance except for the areas of haemorrhage made by the entrance of the immature flukes. These areas varied considerably in number and size. The gall bladder was markedly distended with greenish-yellow bile. In a few of our cases there was some evidence of cirrhosis. The infected necrotic areas regarded by Dodd & Turner as an essential feature of the disease were present in varying numbers. In many instances they were not observable upon the surface but were easily seen in the substance on incision of the liver. These areas were greyish-yellow in colour and varied in size from small minute lenticular areas to fairly large spherical areas as much as 4 cm. in diameter. The periphery of these lesions was sharply demarcated from the surrounding tissue but the edges were constantly irregular with minute indentations and corresponding projections. The lesion was invariably surrounded by a thin, bright red, haemorrhagic band which stood out clearly against the dark haemorrhagic liver tissue. Usually surrounding, or in close association with, the lesion were irregular areas of haemorrhage and congestion. In many of the livers examined these diffuse areas of haemorrhage were widespread throughout the substance.

Frequently under the capsule of the liver and sometimes in its substance small tortuous, worm-like, yellowish bands were observed. These show no bright red line of haemorrhage and probably result from the passage of the immature fluke.

In some instances the infected necrotic lesions were of a linear appearance measuring as much as 8 cm. in length. In breadth these lesions were usually approximately 1 cm., at their greatest measurement, thinning down to being just barely perceptible. Their course was usually irregular and the edges of the lesion extremely ragged. The thin line of bright red haemorrhage was present and the surrounding tissue extremely haemorrhagic. When the necrotic lesions occur on the surface of the liver they are not elevated or depressed. There is no apparent break in the continuity of the organ. On incision of the surface, the majority of the lesions extend into the substance in the form of a wedge..

In our examination immature liver flukes were found in the parenchyma of the liver and in some cases adult flukes in the gall bladder.

In the examination of the liver for the presence or absence of these necrotic lesions it is important to section the organ systematically from end to end into slices approximately 1 cm. thick.

Histology

Liver.—Sections of the liver through a typical area of necrosis reveal a striking microscopical picture. Briefly stated, there is a central area of coagulative necrosis surrounded by a strong leucocytic barrier. According to Turner the origin of this necrotic area is evolved in a number of stages. The first stage arises by the wanderings of the immature fluke, leaving a tunnel which becomes filled with extravasated blood and tissue debris. This in turn is invaded by polymorphonuclear leucocytes and subsequently surrounded by a zone of necrosis. In order to isolate the damaged areas a strong barrier of polymorphonuclear leucocytes is formed surrounding the necrotic mass. The liver tissue surrounding the necrotic area is intensely congested. The origin of the necrosis is believed to be the liberation of toxic substances by the immature fluke and mechanical damage done to the liver cells by the spinous processes which protrude from the fluke. The leucocytic barrier in gram-stained sections examined under the oil-immersion objective show numerous vegetative forms of gram-positive bacilli (*vide* Figs. 1, 2, 3, 4 and 5).

Bacteriology

It is not the purpose of this paper to describe in detail our bacteriological findings. As we have shown in our discussion of the pathogenesis of the disease, the isolation of *Cl. oedematiens* from the liver of a sheep does not justify the diagnosis of black disease. Therefore, for our present purposes the bacteriological data is of secondary importance. It is sufficient to state that a bacterium was isolated from six cases which conform to the cultural, biological and serological characteristics of *Cl. oedematiens*. The classification of the toxins of those strains according to the methods described by Oakley, Warrack & Clarke (1947) shows the organisms to be *Cl. oedematiens, Type B.* This work was carried out concomitantly at this laboratory and the Wellcome Physiological Research Laboratories, Beckenham.

Differential Diagnosis

On reviewing the literature it is apparent that there has undoubtedly been considerable confusion in the separation of black disease and braxy as clinical and even pathological entities. Dodd cites that in 1895 Pottie stated that black disease was similar to braxy. In later years, in spite of the elucidation of braxy by Gaiger, and the excellent description by Dodd of black disease, the confusion between the two diseases continued. For instance, Gaiger (1924) expressed the strong opinion that black disease will be found to be due to the same infective agent as braxy. Hellon (1920) stated that black disease was probably only another form of braxy. In 1927 Turner visited the West of Scotland and as a result of material submitted to him from a notorious braxy farm he stated that the study of these specimens, taken with Gaiger's classical research, left no doubt in the writer's mind that the braxy found in Great Britain is totally distinct from black disease in Australia. In our investigations in Caithness we were therefore not surprised to find the local name for the disease to be "water braxy." In a comparative clinical study certain characteristics distinguish the two conditions.

1. Braxy is usually a disease of hoggs, whereas black disease has been found by us only in adult sheep.

2. Braxy occurs usually following a sudden hoar frost; black disease has an autumn and winter incidence and ceases abruptly on the occurrence of frost.

3. In braxy the abomasum is the site of the primary pathological change; in black disease the liver shows the primary lesions.

4. In braxy immature liver fluke infestation need not be present; in black disease we believe immature liver fluke infestation to be necessary.

To the observant clinician the condition which is most likely to be confused with black disease is acute fascioliasis. In our opinion the true identification of these two conditions may necessitate laboratory examination. In many instances both conditions may occur on the same farm simultaneously. In attempting, on a clinical basis, to distinguish the two conditions a comparison as tabulated might prove useful.

Fig. 1

Section through a typical necrotic lesion, showing the necrotic mass A surrounded by a strong leucocytic barrier. Area B shows liquefaction of the necrosed tissue. × 50.

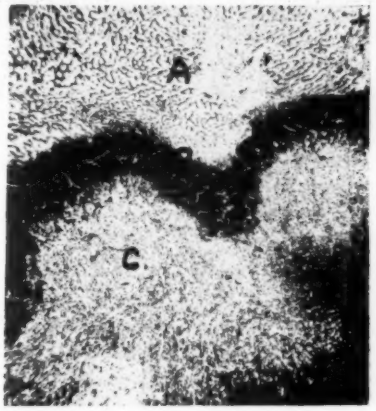

Fig. 2

Section of liver showing the edge of the necrotic lesion. A. Necrotic tissue. B. Leucocytic barrier. C. Congested liver tissue. D. Area of haemorrhage due to ravages of immature liver fluke. × 90.

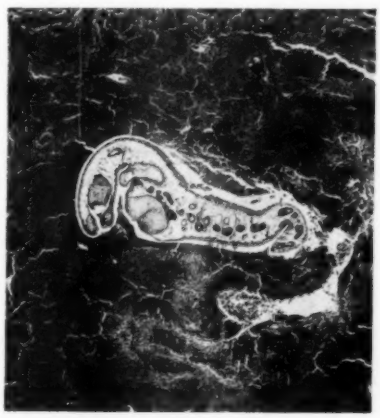

Fig. 3

An immature liver fluke in the liver tissue. × 50.

Fig. 4

Higher magnification of Fig. 3, showing the spinous processes of immature liver fluke. × 350.

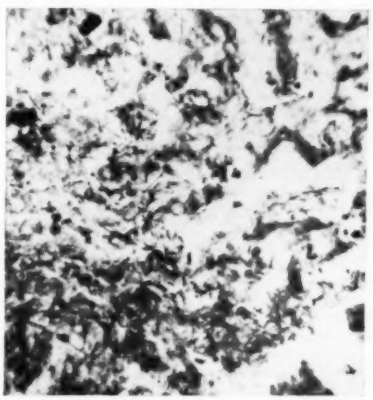

Fig. 5

Edge of leucocytic barrier showing vegetative rods of *Cl. oedematiens*. × 900.

	Acute Fascioliasis.	*Black Disease.*
1.	The period of illness is usually from three to nine days.	Period of illness rarely seen; if observed, usually 24 hours or less.
2.	Death supervenes quietly but pain often observed on retro-sternal palpation.	Death quietly, no pain on retro-sternal palpation.
3.	Abdomen shows varying distension.	No distension.
4.	Necrotic lesions if present are not uniform and show no zone of congestion.	Characteristic necrotic lesions.
5.	Seasonal incidence autumn, winter and maybe early spring.	A similar seasonal incidence.
6.	Cessation after sudden frost.	Cessation after sudden frost.

From the above comparison it will be noted that there are some points of similarity between acute fascioliasis and black disease. In either disease a bacteriological examination of the liver can be of little diagnostic value without a histological examination. This point is discussed in greater detail under the pathogenesis of the disease where it is shown that *Cl. oedematiens* can be recovered from the liver tissue of apparently healthy sheep. The essential differential diagnostic criterion is the *infected* necrotic liver lesions. When these occur in the spherical form, diagnosis should be easy provided the various clinical data are carefully observed. On the other hand, when the lesions assume the linear pattern, diagnosis without histological examination is much more uncertain. To recapitulate, the clinician can best arrive at a diagnosis by careful attention to the following points:—

1. A careful examination of the age group, the season, the topography of the pasture and the presence or otherwise of liver fluke infestation.

2. The necessity for examining the liver by multiple incision.

3. The immediate fixation of necrotic liver lesions of any kind in 10 per cent. formal saline for laboratory examination.

The Pathogenesis of the Disease

The association of parasites with bacteria in the causation of disease has for many years been regarded as a possibility by experienced workers. Aynaud (1926) recorded the association of strongyle infestation with braxy and lungworm infestation with blackleg. Dodd suggested the possibility of the liver fluke being associated with a bacterium in the causation of black disease but it remained for Turner to demonstrate experimentally the exact relationship between the parasite and the bacterium. He explains the aetiology of the disease in the following manner. During the process of years, sheep grazing on pasture, infect that pasture with the spores of *Cl. oedematiens*. This infection is associated with the type of husbandry adopted and is aggravated by overstocking of the pastures and by imperfect disposal of the carcases of sheep dying on the pasture. Healthy sheep grazing on these pastures ingest the spores of *Cl. oedematiens* without apparent damage or ill-effect. These spores are to be found chiefly in the liver and spleen.

The immature liver fluke wandering through the liver substance, of itself produces damage and necrosis of the spore-containing tissue, and infection develops. Turner's experimental data strongly supports this hypothesis. He has shown that toxin-free spores introduced parenterally into a sheep are for the most part carried by phagocytes to the liver and spleen and that such spores may remain for at least nine months in these organs. From apparently healthy sheep grazing on infected pastures he has demonstrated the presence of spores in the liver of 43 per cent. of sheep which he examined. In Caithness, using his technique, we have isolated *Cl. oedematiens* from livers of five out of a total of twelve apparently healthy sheep. Turner has also shown that guinea-pigs fed on toxin-free spores and subsequently infected with liver fluke *cercariae* develop the lesions of black disease.

In a disease of this nature it will be obvious that a number of "intrinsic" factors are concerned in its incidence. The occurrence of the disease in any animal appears in the light of our present knowledge to be fortuitous. For instance, it is reasonable to infer that within an animal or a flock there may be present considerable numbers of latent spores of *Cl. oedematiens* together with numbers of immature wandering liver flukes without the disease arising. Whether the distribution of the spores in the liver is regular or irregular and whether the meeting between fluke and spore is purely accidental are factors still to be investigated.

Again, in pastures overstocked with sheep it is reasonable to believe that the spores of other anaerobic organisms should exist probably in greater proportions than those of *Cl. oedematiens*. The obvious question is why are these spores apparently not conveyed to the liver?

Black disease occurring naturally has so far only been associated with the liver fluke as the cataphylactic agent. Turner, however, has reproduced the disease experimentally in rabbits with wandering *Cysticerci pisiformis* as the activating agents and has postulated the possibility of the disease arising through the wanderings of any irritating parasite or of drugs such as carbon tetrachloride or any other chemical which might cause damage to the liver tissue.

Pathogenesis of Black Disease

Summary

The occurrence of infectious necrotic hepatitis (black disease) of sheep is reported in the County of Caithness, Scotland. Since this is the first report in this country the clinical syndrome, differential diagnosis and pathogenesis of the disease have been described.

Acknowledgments.—The authors take this opportunity of expressing with gratitude the help and information which they obtained throughout this investigation from Messrs. Mackintosh and Sutherland of the Animal Health Division. To Dr. J. Russell Greig our thanks are due for his continued advice and help.

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CONCERN AT SLAUGHTER OF HORSES

Great concern at the large scale slaughter of useful horses and ponies was expressed at the recent annual conference of the National Federation of Saddlers and Leather Goods Retailers.

Well-bred young Suffolk stock were being bought and destroyed, according to one Suffolk delegate; while representatives from Lancashire and the West of England spoke of many horses and ponies being put down in their areas.

A resolution was passed, urging that it should be a punishable offence for any horse or pony to be slaughtered without a veterinary certificate that it was unfit for work.

Copies of the resolution were sent to the Ministry of Agriculture and to the British Horse Society.

In a recent issue the *Lynn News and Advertiser* drew attention to the large number of West Norfolk horses which were being sent to industrial areas for slaughter to provide "off the ration" meat for human consumption.

THE VETERINARY RECORD

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PENICILLIN

FOR some time past, there appears to have developed a diminution in the efficiency of penicillin, and it is significant that about two or three months ago, general medical practitioners were increasing the dosage by as much as 100 per cent.

The *British Medical Journal* of November 29th directs timely attention to what it calls "the magnitude of this unwelcome change," and discusses the possible causes thereof.

The incidence of strains of *staphylococcus pyogenes* that are grossly resistant to penicillin is clearly increasing. According to Dr. Barber[1] the rate of increase in the Hammersmith Hospital is at present so rapid as to be somewhat alarming. In analysing a series of 100 patients with staphylococcal infection between February and June, 1947, Barber found that as many as 38 yielded penicillin-resistant strains. The degree of resistance was, in all 38 cases, gross, and all, except one strain which was not tested, were shown to produce penicillinase. In most of the 38 cases, *staphylococcus pyogenes* was the only, or at least the predominant organism, isolated; from ten patients both penicillin-sensitive and penicillin-resistant strains of *staph. pyogenes* were isolated from the same specimen.

It appears that staphylococci possess a very great capacity for acquiring resistance, at least *in vitro*; and so far as the latter is any guide, it has been ascertained that the resistance of *staph. aureus* could be raised 3,000 fold; that of a pneumococcus 27 fold and of *streptococcus pyogenes* five fold.[2]

Thus, the streptococcus is unlikely to present such a difficult problem, especially in view of its much greater sulphonamide susceptibility. Nevertheless, it was in consequence of its ability to antagonise the staphylococcus that penicillin therapy was regarded as of such exceptional value.

If, as seems indisputable, this power is on the wane, then we must start anew, and place our faith in the future discovery of another chemotherapeutic agent. It is feared that no reliance can be placed even upon streptomycin, as there are already abundant records that the staphylococcus can acquire immense resistance to it in a very short while.

We may now ask "What are the causes of this waning power of penicillin?" One may rest assured that there has been no lowering of the standard of potency, and may reasonably assume that the methods of manufacture and of test have suffered no loss of efficiency with the advance of time and experience.

If the product is absolved of all blame, then we are faced with and must accept the much more serious reason that organisms are rapidly becoming increasingly resistant. Many believe the latter phenomenon is resultant upon the widespread (and probably often indiscriminate) use of penicillin.

We would add that other possible and probable reasons are inadequate dosage and/or failure to maintain blood levels by too infrequent administration. Carelessness in the methods of storage and manipulation must not be overlooked.

Dr. Barber asks the question "Where do these penicillin-resistant organisms come from?" and, by way of answer, advances the explanation that "they are clearly present in the original lesion, but overgrown by sensitive strains until penicillin treament leaves them a clear field by getting rid of the latter."

"Hospital infection with *staph. pyogenes* is, however, fairly common and penicillin-resistant staphylococci occur far more often in patients who have been in hospital some time, than in new admissions.

"In any hospital using large quantities of penicillin bacteria resistant to its action are probably increasing at the expense of those that are sensitive, and it seems not impossible that in time the resistant organisms will be the sole survivors."

There appear to be two quite distinct types of bacterial resistance, and it was Spink and Ferris[3] who observed that some staphylococci artificially habituated to penicillin *in vitro* rapidly lost the property of resistance on transfer to normal media, and did not owe it to the formation of any inactivating substance such as penicillinase. On the other hand, naturally resistant strains, or those apparently acquiring resistance *in vivo*, were permanently resistant.

We are in whole-hearted agreement with the *British Medical Journal* when it sums up the position thus:—"The correct policy is to test the sensitivity of the organism in each case and to give, from the first, a dose which should be adequate to control it. This is not universally feasible, but another useful measure within the capacity of every practitioner is to restrict the use of penicillin to cases in which there are clear indications for it.

"The present enormous consumption of the drug can be accounted for only by a good deal of indiscriminate use, and it is generally considered that widespread use particularly of inadequate doses, is a potent factor in breeding resistant strains of bacteria."

1 Barber, Mary. (1947.) *Brit. med. J.* November 29th, 863.
2 Todd, S. W. (1945.) *Ibid.* **2**, 603.
3 Spink, W. W., & Ferris, V. (1945.) *Science.* August 31st, 221.

"WAR ON HORNS"

Fifty-four Ayrshire breeders from Northumberland, Durham and North Yorkshire, meeting jn Newcastle last week, decided to start dehorning all their heifer calves as from January 1st," states *The Farmers' Weekly* under the above heading in its issue of December 24th, and continues: "Even among the nine who voted against the proposal there were some who dissented, not because they were unfavourable, but because they thought they should see how other areas felt before committing themselves.

"This is good news—even if 54 breeders cannot be regarded as a landslide. Following the recent decision of the British White Cattle Society to confine its Herd Book to polled animals, it suggests that cattlemen generally are beginning to recognize horns on the domestic cow for what they are—an unnecessary and expensive piece of decoration in the same way that excessive 'feather' in the Shire, overstocking of cows and colouring of sheep are unnecessary and expensive.

"There is a strong sentimental affection for horns still about (nobody has yet produced a shred of evidence that it is anything but sentiment) as witness the uncompromising attitude of the Shorthorn Society on the matter."

* * * * *

Royal Society Appointment—The Royal Society has appointed Dr. K. Bailey, of the Biochemical Laboratory, Cambridge, to an Alan Johnston, Lawrence and Moseley Research Fellowship into the problems of human and animal health and diseases and the related biological field.

CLINICAL COMMUNICATIONS

A Specific, Highly Contagious, Disease in Dogs*

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This paper is based on practical experience during the last three years with dogs in private practice and at the Manchester and District Home for lost dogs.

This condition is becoming more prevalent each year and I am of the opinion that it is not "distemper." It has the following clinical picture. I would define it as a specific highly contagious infection which is characterized by an incubation period of four to ten days and has a marked tendency to recur.

SYMPTOMS.—The most common symptoms are tonsillitis and diarrhoea. There are two forms of this condition—acute and mild.

Acute form.—This form is characterized by sudden malaise, a rise in temperature, usually to between 103° and 104°, occasionally to 106° or 107°. The patient is disinclined to feed but drink may be taken. The conjunctival mucous membranes are intensely congested and the mouth is dry. The upper surface of the tongue is pale and furred. A sore throat, harshness of voice and a short spasmodic cough are noted. The pharynx is grossly inflamed and in opening the jaws to examine the pharynx the patient evinces pain. Within two to three days the eyes show a watery discharge and saliva wets the chin. Initial constipation passes to diarrhoea. From this stage it is difficult to say what course the condition will take. A small percentage of cases pass into a state of collapse and die; others appear to recover up to about ten days, when there is a relapse and prolonged illness follows. In many, the patient recovers in general health but a chronic tonsillitis persists.

Mild Form.—These cases usually show slight coughing and sickness but have a good appetite. The temperature is invariably 102°. Dogs affected with this form of the disease often recover on their own, but if brought for treatment the signs abate in about a week. These symptoms I have met daily. They appear all the year round with now and again an epidemic. Last year I had very few deaths, but this summer I have lost quite a number of cases.

The symptoms agree exactly with those given by Dr. T. Hare in his paper "Beta haemolytic Streptococcus infection in Dogs" (*Vet. Rec.*, April 20th, 1946). I cannot, however, agree with Dr. Hare although I have tried hard to follow his theory.

In private practice I have consistently used Dr. Hare's B.H.S. Vaccine according to his instructions and at the Manchester and District Home for Lost Dogs I have used no vaccine whatever. At the Dogs' Home Clinic I have attended to 10,000 patients during the last three years. Not all have had this condition but certainly a good 60 per cent. have, probably more. These dogs get a bottle of mist. bronchialis and are given careful nursing; they are seen twice each week until recovery. The most common symptoms here are intense conjunctivitis, coughing, sickness and diarrhoea. The sickness is of a frothy nature and seldom is food vomited. The majority of these cases recover in two to three weeks. Occasionally one meets with a few cases of nervous symptoms, including chorea, but taking the large number of cases attending the clinic this is very slight. Now and again I come across a typical case of distemper. None of these cases which attend the clinic has been immunized against distemper with serum virus or vaccine virus, and the percentage of deaths is very small indeed.

In the kennels at the Home, all dogs which have been lost have to be kept there for seven days by law. After that, if not reclaimed by their owners, the dogs are sold to the public or painlessly destroyed. Practically every dog sold, although apparently healthy when sold, is back at the clinic in a few days showing the symptoms I have already described.

In my private practice I have used B.H.S. Vaccine, giving 2 c.c. every two days until four or five injections have been given. Symptomatic treatment is also administered. I have also used B.H.S. Vaccine as a preventive measure to all in-contacts with cases being dealt with. In this I have had no success whatever.

During this summer practically every dog I have inoculated against distemper with Burroughs Wellcome serum virus has developed this condition, usually at some time during the first year after immunization. I have noticed this summer that practically every dog that has been boarded out has come home with definite symptoms of this condition, showing how highly contagious it is.

CONCLUSIONS.—I have no bacteriological evidence on this condition. My contention that we have to-day a condition in dogs which is most prevalent and is not distemper is purely practical. As a practitioner I do not believe in the B.H.S. theory, but agree with Dr. Hare in his description of the symptoms. I am of the opinion that this condition is not distemper because

(*a*) it occurs in dogs of all ages;

(*b*) it occurs in dogs already immunized against distemper;

(*c*) no immunity persists after one attack such as is the case in distemper.

* Presented to the Lancashire Division, N.V.M.A., at Bolton, September 19th, 1947.

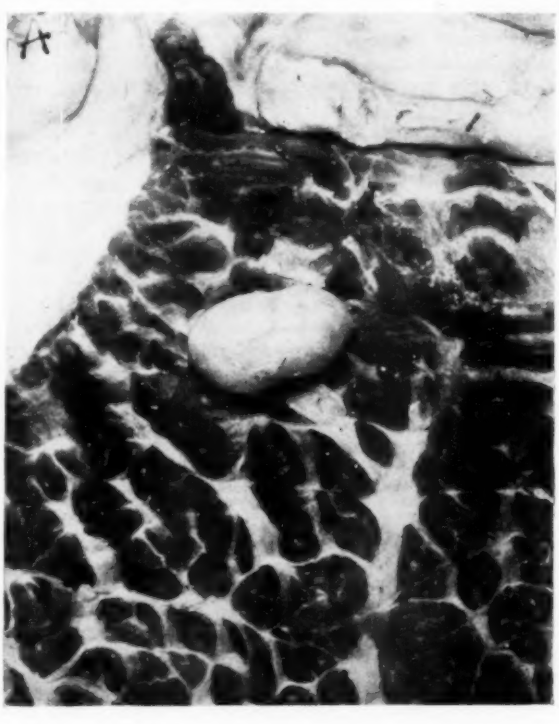
* * * * *

Demonstration of Cysticercus Bovis*

Mr. A. McLEAN, City Veterinarian, demonstrated the method of examination for *C. bovis*, and showed two bovine heads with the parasites *in situ*, also photographs and slides of the parasites.

He pointed out that four stages in development had been met with at the Belfast Abattoir, *viz.*:—

(*a*) Translucent, pinkish oval cysts, 2 to 6 mm., in which the scolex can be easily seen as a glistening white spot and which are fairly easily enucleated leaving a depression in the muscle (see photograph A).



(*b*) Cysts of a greyish or yellowish or greenish colour showing evidence of caseation and/or calcification.

(*c*) Small cysts, 1 to 2 mm., with thick walls, containing very small cysticercus which are adherent to the cyst wall. These are fairly common.

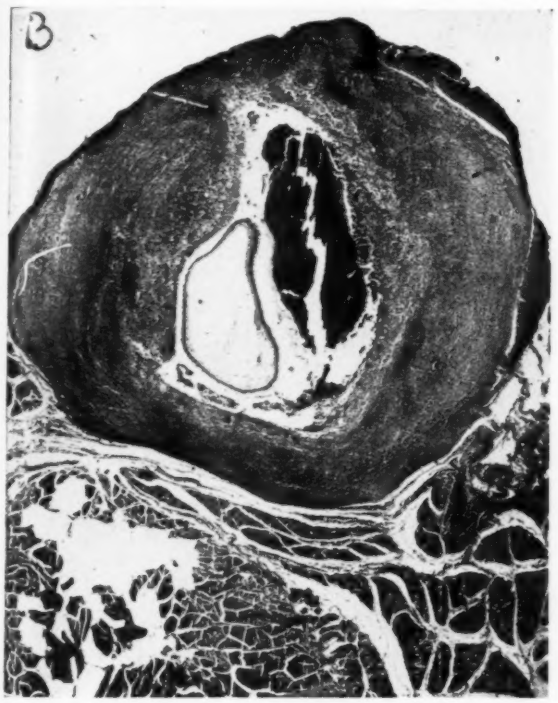
(*d*) Very small cysts about the size of a pin-head with no scolex visible and of a whitish colour.

He found the incidence of infestation to be 0·23 per cent. of all bovines slaughtered and was of the opinion that it is probably a good deal higher as one is limited to the number of incisions made in routine inspections. In practically every instance the cysts have been confined to the masseter muscles, only on a few occasions have they been found in the cervical muscles. The distribution has been as follows:—

60 per cent. left external masseter muscle.
29 per cent. right external masseter muscle.

* At the meeting of the North of Ireland Veterinary Medical Association held at Belfast, October 10th, 1947.

11 per cent. both external right and left masseter muscles.
2 per cent. left internal masseter muscle only.
The micro-photograph shows a section through a cyst.



Canine Obstetric Forceps

Mr. McLean also demonstrated a pair of obstetric forceps he had been using for some considerable time and which he found had the following advantages:—

(*a*) The limbs of the forceps are united so as to avoid any possibility of seizing the vaginal mucous membrane when applying the forceps to the foetus.

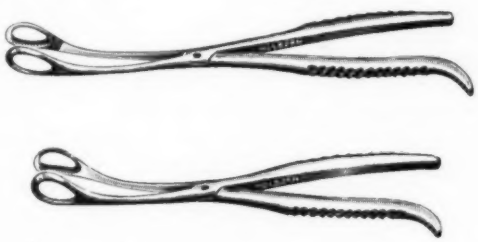
(*b*) The handles are so constructed as to avoid the pressure on the fingers which occurs in using forceps with ringed handles.

(*c*) The head of the forceps is bevelled off so as to avoid, as far as possible, the risk of seizing the uterine wall and is set at such an angle as to make easy the extraction of a puppy, presenting just at the brim of the pelvis in the anterior presentation.

(*d*) The balance of the forceps is good and being made of stainless steel they will stand up to plenty of hard wear.

(*e*) They are made in three sizes, A, B and C.

Those members interested in canine work expressed their appreciation of the forceps.



Weekly Wisdom

One of our greatest difficulties is going to be the widespread decline of tradition and habit of keen conscientious work.—"The Observer."

Questions and Answers

The submission of questions for inclusion in this column will be welcomed: they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Phenothiazine Overdosage or Idiosyncrasy in Equines

Q. CCXXVIII.—*What treatment do you advise to combat overdosing with or idiosyncrasy to phenothiazine in foals and horses, especially with reference to inco-ordination of limbs?*

A.—Unfortunately our lack of understanding of phenothiazine intoxication at the present time is such that we can advise nothing better than symptomatic treatment. There is no specific antidotal treatment. The fate of phenothiazine in the animal body appears to differ in some respects with the species of animal to which it is administered, and the symptoms of intoxication show corresponding variations. The most constant effect, however, is the production of a haemolytic anaemia.

Inco-ordination of muscular movement, and weakness, particularly in the hind limbs, is a common symptom in the pig, but, so far as the writer is aware, has not previously been recorded in the horse.

Until more is known of the processes by which intoxication is brought about it is unlikely that anything in the nature of a satisfactory antidote will be found. Measures which might be taken to assist recovery include administration of charcoal and a purgative, intravenous saline transfusions to aid excretion, and blood transfusions. The latter appear very necessary and must be frequently repeated if the progressive and extensive destruction of red blood corpuscles is to be counteracted. It must be admitted, however, that completely successful treatment of horses affected with phenothiazine intoxication has yet to be recorded.

A plea might be made for the more frequent reporting by practitioners of occurrences of this kind, and it is hoped that this question and answer will stimulate many practitioners to write and place on record their experiences in this connection. Where the safety of the dose of a poisonous drug is such that 999 out of every 1,000 animals are unaffected it is not possible to cover all the eventualities in laboratory observations and the research worker may remain blissfully ignorant of the rare atypical response unless it is brought to light by publication from the field.

It is not unlikely that some predisposing factors in diet or management will eventually be recognized to account for this occasional sensitivity. Two American workers have produced evidence that horses are protected against the haemolytic effect of phenothiazine by a high protein diet. This is a useful observation, but it needs confirmation, and we have little chance of avoiding the occasional unfortunate response to phenothiazine dosing until practitioners make generally available the knowledge gained in their valuable field experience.

. . . . .

Rickets in Greyhound Puppies

Q. CCXXIX.—*What are the possible reasons for the fact that the country breeding establishment of a large greyhound racing company find it impossible to rear litters of puppies from a variety of sires and dams free from rickets in early youth and which eventually grow to maturity small in stature but otherwise perfect, and, in many cases, first-class racers. Large grassy paddocks and natural conditions are provided and extensive feeding experiments with regard to vitamin and mineral deficiency have been carried out with no success.*

A.—There are more greyhound puppies ruined by too much food and too little exercise than there are with too little food if freedom is assured. Worms should be dealt with both in dams and progeny. When these are eliminated it is largely a question of human interference which puts the puppies wrong. Give a good, dry, wooden bed with freedom from dampness and direct draught and insist on the kennel doors being open during all daylight hours, wet or dry, summer or winter. Do not rear too many puppies on one bitch if size is the aim, and do not expect puppies on a foster bitch to show as much bloom as those on the dam herself. Weaned puppies on milk (goat or cow) do better than those on vegetable broth and meat. Give cod-liver oil in small quantities and feed a ration of bone meal. Above all arrange the layout of the runs so that all litters are coaxed to run up and down their own paddocks by adjacent fellows. Subsoil is probably of secondary importance if space is big enough to prevent perpetual mud-larking. A pen 20 yards by 10 yards will suffice for pups up to 12 weeks old and

three times these dimensions for pups up to 12 months. There should be a sleeping kennel in every paddock.

Given above conditions success is assured. The possible reasons for failure are parasites, dampness in bed sites, restricted liberty combined with too much food. To pamper is to ruin and the writer does not believe that a puppy can often be overfed if he has absolute liberty.

* * * * *

Correspondence

The "Green" Method of Distemper Prophylaxis

Sir,—The answer to Q. CCXXVI (b) is, in my opinion, unsound and prejudiced and until the Frome-Green distemperoid virus has been tried or investigated in Great Britain everyone here should be wary of expressing such dogmatic opinions as the writer of the answer has done even though he states "None of the evidence so far collected favours that method of immunisation."

In East Africa a vaccine made from the American strain of virus did immunise dogs as was checked by challenging them (controlled) with virulent distemper virus. Because the Kenya experience is limited, it is not yet possible to say that all the American claims for this method will be confirmed, but this small experience convinces me that British writers would be well advised, at least for the moment, to keep an open mind and avoid giving vent to statements which may prove to be premature, if not incorrect.

Yours faithfully,

H. S. Purchase.

c/o 33, Hagden Lane,
Watford, Herts.
December 19th, 1947.

ABSTRACT

[The Blood Potassium and Calcium Levels of Cattle Grazing Wheat. Harbaugh, F. G., & Dennis, J. (1947.) *Amer. J. vet. Res.* **8**. 396-399.]

It is considered that the term "wheat poisoning" used in Texas is a misnomer, and that the animals which die when grazing wheat are suffering from a form of tetany, which sometimes resembles hypomagnesaemia and sometimes the pre-coma tetany of milk fever. Analyses of serum calcium and plasma potassium were carried out on twelve normal dairy cows, ten cows grazing wheat without supplementary rations, and on five cases of tetany which occurred in cows grazing wheat. In the healthy cows grazing wheat there was a slightly low calcium level compared to the normal cows and this led to a raised K/Ca ratio. In the five clinical cases there was pronounced hypocalcaemia with calcium values 3·3 to 6·6 mg. per cent. and normal potassium values in four cases and a raised value in the fifth, and the K/Ca ratio was raised still further. The authors stress the ratio K/Ca in this connection and refer to experimental work on alterations in the levels of calcium and potassium now in press.

W. M. A.

REVIEW

["Diagnostic Agents." T. D. Whittet, ph.c., d.b.a. The Pharmaceutical Press, 17, Bloomsbury Square, London, W.C.1. 2s. 6d.]

This is a most useful little booklet of 28 pages describing in concise and handy form a great number of diagnostic methods and tests for a wide variety of conditions. Although issued primarily for the medical profession, there is much which would be of service to the veterinarian; and above all there is a very comprehensive general index.

The expenditure of a half-crown in buying this booklet will more than repay the purchaser in practical knowledge, and our readers would be well advised to add this publication to their library.

Docked Show Exhibits.—At a meeting of the Council of the Shire Horse Society a letter was read from the Royal Agricultural Society of England asking for the views of Shire horse breeders on showing docked horses at agricultural exhibitions. The Council unanimously came to the decision that "As, under the present law, animals can only be docked by a veterinary surgeon using a local anaesthetic, we are opposed to the prohibition of docked horses being exhibited at the Royal Show."

MEMOIR

John A. W. Dollar, F.R.C.V.S., F.R.S.E.

Inherited qualities, personal endeavour in their application, and a definitely suitable environment, together with an exceptional mental and physical equipment combined to make John A. W. Dollar one of the outstanding men in veterinary history.

He was born in 1866 and lived to be 80. He belonged to a period that did more than any other to create and develop the veterinary profession in this country. Horse practice was at its height and a whole series of veterinary men attained such proficiency that the verb "to vet" came into being, invested with the highly respectable meaning it enjoys in our established vocabulary. They placed the work of a veterinary surgeon on a very high pedestal.

The London group were concerned mainly with horses and it was in dealing with the horse that such marked skill was revealed. No horse transaction (of any consequence) was complete unless made through the judgment of a vet. and there was no process more exacting and requiring the summons and application at will of so much knowledge as the examination of a horse for soundness and the certification of the result in legal form. Hunting, Mulvey, Rickard, Batt and Withers were amongst the London giants of the time. This made the more striking the fact that J. A. W. Dollar achieved such eminence. It was left to Sewell to recognize the possibilities of canine practice in the West End. Henry Gray and Hobday followed later, but Dollar was and remained pre-eminently a horse man.

An educated man in the widest conception of the term, his equipment in this respect was almost unique. In the earliest stages he is said to have made little progress, but as occasionally happens, he blossomed suddenly out, and exhibited a rare enthusiasm for knowledge for its own sake. After some years at the Dollar Academy in Scotland, he entered the Royal Veterinary College, London, to commence his professional course, in 1884. He registered also, in that year, as a student in King's College, London. This was when the University of London was purely an examining authority. King's was a college of university rank—one of those old institutions that regarded the practice of instruction as the most important part, and examination the least important in the scheme of education.

It showed the breadth of view that he held, when he decided to avail himself of the wider influence of the great minds then at King's. There he took, amongst others, courses in physiology, public speaking, and German, and the following year took prizes in the two latter subjects. At the Royal Veterinary College he distinguished himself in many subjects, as was only to be expected. This, combined with public speaking and foreign languages, gave him an all-round background, rare in any profession, but as valuable in the profession's interest as it is unusual. What an asset the medical profession found in the oratory of Moynihan! This quality was destined to serve both Dollar and his profession well.

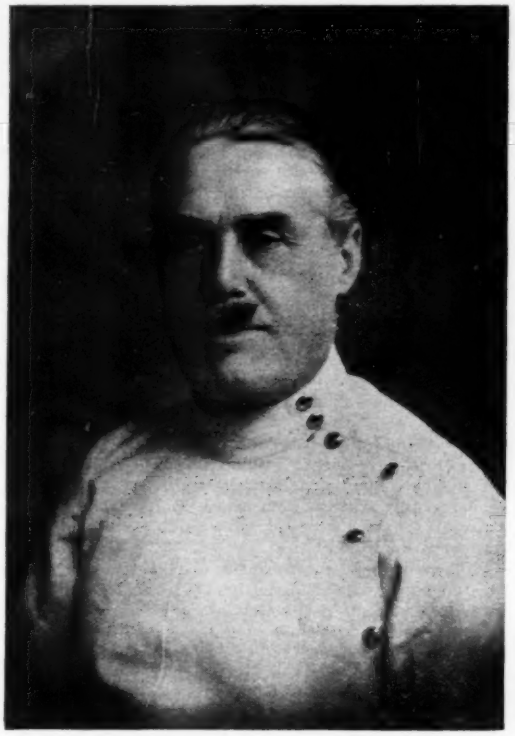
He qualified in 1887 and returned to King's that same year to attend Crookshanks' course in bacteriology, which was claimed to be the first of such courses in the British Isles. In 1889 he visited Paris and the Lyons Veterinary College where his brother had been trained. Thus commenced a contact with the Continental centres which continued throughout his active life and made him one of the best known British veterinary surgeons of the time.

He took courses at the Berlin Veterinary College and Koch's Laboratory in 1892 and 1893 and in the summer of 1893 attended courses at Alfort and the Pasteur Institute, Paris.

He made a most appropriate representative of the R.C.V.S. at the Congress of Hygiene, Madrid, in 1898, the International Veterinary Congress at Baden Baden in 1899, and the International Veterinary Congress at Budapest in 1905.

He was a prolific writer with a facile pen and his knowledge of foreign languages enabled him to translate and make available to English readers several Continental works, amongst which were those of Moller, Cadiot and Moussu, while his own work of eleven hundred pages on Veterinary Surgery, which incorporated Moller's, appeared in 1912. This work has run into three editions, the third being published in 1938 under the editorship of J. J. O'Connor.

He was keenly interested in engineering, was a skilled electrician and an accomplished artist, of which there was early evidence during his course at the Dollar Academy. He made a hobby of photography for many years. His chief sport was fencing, of which he was a master, being a member of Salle Tassant, and in 1922 winner of the Doigne Cup.



[*Photo.*: *F. W. Wood Ltd., Edgware Road, W.*
As Member of Salle Tassart, c. 1928

[*Photograph by his daughter, Miss Lavender V. Dollar.*

On Holiday at Bournemouth in 1940, the Year of His Election (*hon. causa*) F.R.C.V.S

His name will be associated with the introduction into Britain of equine operating tables.

On the Continent his work was recognized in his election as:—

Corresponding Member of the Ceneral Veterinary Medical Society of Paris.

Corresponding Associate of the Society of Veterinary Medicine of Brabant (Belgium).

Corresponding Associate of the Royal Italian Society of Hygiene (with medal), and of the Royal Spanish Society of Arts, Veterinary Section (with medal).

At home he was much honoured by being elected to several important offices of the Worshipful Company of Farriers, to the membership of the Royal Institution, to the Fellowship of the Royal Society of Edinburgh, and at the early age of 38 he received the highest honour the Council of the R.C.V.S. can confer, by being elected President. This was in 1904.

Notwithstanding all these varied activities, he was associated with his brother in the conduction of a busy London practice until 1926, when the partnership was dissolved and the brothers retired.

At the age of 74 he was elected F.R.C.V.S., an honour with which he was very pleased. This was in 1940.

He married Violet Smart Hammond and had two sons, A. T. J. Dollar, Lecturer in Geology in the University of Glasgow, and I. W. M. Dollar, a Secretary at the British Embassy, Brussels, and one daughter, L. V. Dollar, at present a student in the University of London.

Dollar was a man with a presence, who could make that presence felt—in some respects a turbulent spirit, at a time when there were others, it is not surprising that he became involved in many conflicts. But in opposition he was worthy. To many, he might have appeared austere, but behind there was a kindly nature and testimony could at the time be paid by some from whom it would have been least expected.

Generously endowed, favoured by circumstances which might have led him to pursue an easier course, Dollar selected the strenuous path and gave freely of his fine oratory and able pen in making a real and lasting contribution to the advancement of a profession at a time when it was young and striving and its need was great.

J. S.-J.

SCOTTISH AGRICULTURE: TECHNICAL DEVELOPMENT OFFICER APPOINTED

The Department of Agriculture for Scotland has appointed Mr. A. R. Wannop, O.B.E., B.SC. (AGR.), B.ENG., to the newly created post of Technical Development Officer. Mr. Wannop will be concerned with the promotion of technical development in farming, will act as a liaison officer between the Department of Agriculture and the Agricultural Colleges and, in particular, will be concerned with the development of advisory and extension work in Scotland. For the past twelve years Mr. Wannop has been Director of the Extension and Advisory Service of the North of Scotland College of Agriculture.

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RHEUMATISM RESEARCH

Lord Horder, Chairman, addressing the annual meeting of the Empire Rheumatism Council, said that the investigation into the factors of the causation of rheumatoid arthritis was being maintained; it was as yet too early to draw conclusions from this research. A new directive was being carefully prepared by the Council's Scientific Committee which it was hoped would reveal valuable information to the statistician in framing his final analytical report. The Council had, at present, 14 "registrars" at work on this research. The Council's laboratory at the Hospital of St. John and St. Elizabeth had been reopened and a research worker had been appointed to study the allergic aspects of rheumatism under the direction of Professors Rimington and Cameron. The Council had expended a considerable sum of money upon this laboratory in 1938, but the outbreak of hostilities in 1939 caused a cessation of the work there. Many new methods of treatment had been submitted to the Council. These had all been submitted to the Research and Investigation Sub-committee and reported upon, but nothing of value had emerged during the year.

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Blood Transfusion in Dogs.—In connection with his letter on this subject appearing on page 692 of our issue of December 27th, Mr. J. W. H. Holmes asks us to state that 1 in. should have been used instead of 1½ in. in his bracketed reference (para 2) to the measurements of the needle employed for blood collection.

NOTES AND NEWS

Diary of Events

Jan. 10th.—First Annual General Meeting of the Association of Veterinary Teachers and Research Workers (Southern Region) at the Royal Veterinary College, N.W.1, 11.30 a.m.

Jan. 12th.—Meeting of the Farmers' Club at the Royal Empire Society, W.C.2, at 2.30 p.m. (Professor D. B. Johnstone-Wallace: "Pasture Management and Animal Behaviour.")

Jan. 14th.—N.V.M.A. Committees at 36, Gordon Square, W.C.1: Parliamentary and Public Relations, 11.30 a.m.; General Purposes and Finance, 2 p.m.

Jan. 15th.—N.V.M.A. Committees at 36, Gordon Square, W.C.1: Veterinary State Medicine, 10 a.m.; Organising, 2 p.m.; Home Appointments, 3.45 p.m.

Jan. 16th.—N.V.M.A. Committee at 36, Gordon Square, W.C.1: Agricultural Programme Committee, 9.30 a.m. **Meeting of Council, N.V.M.A., at the Connaught Rooms, Great Queen Street, Kingsway, W.C.2, 11 a.m.**

Jan. 21st.—Meeting of the Midland Counties Division, N.V.M.A., at Birmingham (Grand Hotel), 2.30 p.m.

Jan. 21st.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1. (*Note change of date from 14th.*)

Jan. 23rd.—Annual Meeting of the Mid-West Division, N.V.M.A., at Bristol (Royal Hotel, College Green), 2 p.m.

Jan. 30th.—Meeting of the Yorkshire Division, N.V.M.A., at Leeds (Hotel Metropole), 2.30 p.m.

Jan. 30th.—Meeting of the Institute of Animal Behaviour at the premises of the Zoological Society of London, Regent's Park, N.W., 3 p.m.

Feb. 2nd.—R.V.C. Students' Union Society Annual Ball, at Grosvenor House, Park Lane, W.1.

Feb. 19th and 20th.—Special meetings of Council, R.C.V.S., 10, Red Lion Square, W.C.1.

Feb. 24th.—R.(D.)V.C. Annual Ball, at the Assembly Halls, 54, George Street, Edinburgh.

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PERSONAL

THE NEW YEAR HONOURS

C.B.E. for Dr. W. S. Gordon and Dr. W. L. S. Mackintosh

Their colleagues in the profession will welcome the high distinction conferred upon the two members of the R.C.V.S., Dr. W. S. Gordon and Dr. W. L. S. Mackintosh, whose names appear in the list of recipients of New Year Honours conferred by the King, in the award to both of the C.B.E. in the Civil Division of the Most Excellent Order of the British Empire.

Dr. William Smith Gordon, PH.D., M.R.C.V.S., F.R.S.E., whose distinguished career as a veterinary scientist was outlined in our issue of July 18th, 1942, was appointed in that year as Director of the Field Station of the Agricultural Research Council at Compton, near Newbury, Berks., in succession to the late Mr. G. W. Dunkin. The success in his new sphere which we then foretold was made manifest to the very large number of members N.V.M.A. who visited his Field Station on the occasion of the London Congress of 1946. This recognition of Dr. Gordon's scientific and administrative achievements will be most gratifying to those both in our own community and beyond, who hold him in high regard.

Dr. William Lachlan Smith Mackintosh, D.V.M. (McKillip), M.R.C.V.S., D.T.V.M. (Ed.), Capt., late R.A.V.C., is Director of Veterinary Services, Uganda. Having secured his doctorate at McKillip, Dr. Mackintosh came to the British Isles and took the final year of the M.R.C.V.S. course, graduating from the "Dick" Veterinary College in 1922. In that year he went out to Uganda, officiating as District Veterinary Officer in various areas and taking the Edinburgh diploma in Tropical Veterinary Medicine during leave. He succeeded Mr. Robert Simmons, C.B.E., as Director when the latter was transferred to Nigeria as Director of Veterinary Services, in 1946.

Dr. Mackintosh visited Costa Rica last year to investigate the efficacy of DDT dips against tick infestation, one of his major interests being trypanosomiasis and tsetse fly eradication.

A similar honour is conferred also upon Mr. H. W. Bennetts, Principal of the Animal Health and Nutrition Laboratory, Department of Agriculture, Western Australia, and also among the higher honours are a Companionship of the Order of the Bath for Mr. A. R. Manktelow, Under-Secretary of the Ministry of Agriculture.

All associated with the Glasgow Veterinary College will have learned with much pleasure of the award of the O.B.E. in the Order of the British Empire to Mr. James Austin, M.A., LL.B., the Secretary and Treasurer.

When Mr. Austin was appointed in 1921 the fortunes of the Glasgow Veterinary College were at their lowest, as is shown by the College history. There has been throughout the years since 1921 a constant struggle for survival and for recognition, and for improvement of the status of the College, the teaching staff and the students.

Throughout this difficult period with all its discouragements and frustrations, Mr. Austin, who is a Solicitor with an extensive practice and has important business interests, spent much time and energy in getting support from political, legal and civic circles for the secure establishment in the West of Scotland of a College for Veterinary Education.

The College is now on a firm footing and enjoys the wholehearted support of the Department of Agriculture for Scotland from which it receives a generous grant in aid of maintenance.

The Honours List recognises public service in many spheres, the new Knights including Mr. H. Claughton, Principal of the University of London, and Mr. R. V. Southwell, Rector of the Imperial College of Science and Technology, while for his outstanding achievements in the field of nutritional research Sir Edward Mellanby, Secretary of the Medical Research Council, receives the G.B.E.

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Colonial Service Appointments.—The Colonial Office announces the appointment of Mr. David Patrick White, M.R.C.V.S., Veterinary Officer, Malaya, as Chief Veterinary Officer, Malaya, and of Mr. David Hill, M.R.C.V.S., as Veterinary Officer, Nigeria.

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Dr. R. F. Gordon's Appointment

The Veterinary Educational Trust announces the appointment of Dr. Robert Fraser Gordon, B.Sc., University of Aberdeen, 1930; M.R.C.V.S., London, 1933, and D.Sc., University of Aberdeen, 1947, as Director of the Poultry Research Station which the Trust is establishing at Houghton Grange, near St. Ives, Hunts.

Born in Aberdeen 39 years ago, Dr. Gordon, during the 14 years he has been employed at the Ministry's Veterinary Laboratory, Weybridge, has been in charge of the poultry diagnosis dept., and that work entailed investigation in a wide field of subjects—bacteriology, parasitology, pathology, histology and virus diseases.

It also brought him in close touch with the poultry industry and its specialised branches of genetics, nutrition and husbandry.

Other work has been carried out by him into problems mainly of a bacteriological nature and in particular a study of the *Salmonella* group of organisms. This latter work was the basis for the thesis successfully presented for a Doctorate in Science and was entitled "Avian salmonellosis, with reference to the rapid whole blood stained antigen test in the eradication of pullorum disease."

Mr. Gordon was a member of the Poultry Mission which visited the U.S.A. and Canada during 1946 and a joint author of the mission's report on the development of the poultry industry in North America.

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Mr. J. R. Holmes, a Liverpool University student, who, in 1947, was awarded a Veterinary Educational Trust research training scholarship, has obtained the degree of B.V.Sc. with honours. This is only the second time that the degree has been awarded with honours at Liverpool. In his 1947 work, Mr. Holmes studied nutritional ailments in cattle.

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Appointment.—Mr. Joseph Irvine Magowan, M.R.C.V.S., D.V.S.M., Deputy Chief Veterinary Officer in the Northern Ireland Ministry of Agriculture, has been appointed an Acting Assistant Secretary.

Birth.—Hills.—On December 6th, 1947, to Marjorie (*née* Shakespeare), wife of J. N. M. Hills, M.R.C.V.S.—a daughter, Elizabeth Jane.

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Marriage.—Rowe—Grace.—On December 15th, at St. Mary's Church, Thornbury, John F. W. Rowe, M.R.C.V.S., to Ruth Eileen, daughter of Mr. and Mrs. F. H. Grace, West Shen, Thornbury, Bristol.

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A Rugby Celebrity.—Now in his third season as an international player, Michael R. Steele-Bodger, of the Royal (Dick) Veterinary College, holds the distinction, unique for a veterinary student, of continuous selection for his country since his appearance against Wales in 1946, when captain of the Cambridge XV. Following his leadership of the Barbarians against Leicester on Boxing Day—a more severe test than the final trial at Portsmouth—this now famous forward duly appeared against the Australians at Twickenham on Saturday. In this triumphant climax of a thoroughly successful tour, not only did the visitors win handsomely, but, as the score of 11 points to nil shows, maintained their great record of a line uncrossed in an international match. The England pack were in good form, however, in a gruelling game throughout the greater part of which, to quote *The Times* Rugby Football Correspondent, "anxiety outbalanced hope unless one never took one's eyes off Steele-Bodger"—a tribute indeed.

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R.C.V.S. OBITUARY

Davidson, George Douglas Wallace, Leigh House, Crossmichael Road, Castle-Douglas, Kirkcudbrightshire. Graduated Edinburgh, December 15th, 1925. Died December 23rd, 1947; aged 59 years.

Low, Harry Vincent, 4, The Crescent, Norwich. Graduated London, May 30th, 1894. Died December 27th, 1947; aged 76 years.

Watkins, Charles Digby, Castle Street, Tredegar, Mon. Graduated Edinburgh, May 28th, 1889. Died December 26th, 1947; aged 83 years.

Mr. Harry V. Low, M.R.C.V.S.

Mr. Harry Vincent Low, whose death we record with much regret, was one of the best known practitioners in East Anglia and his passing will be felt deeply by his professional colleagues in the area.

Mr. Low was a son of the late Mr. Frederick Low, M.R.C.V.S., on whose death in 1909 he succeeded in practice in Norwich.

He had acted as one of the veterinary surgeons at the Royal Norfolk Agricultural Association's annual shows for many years and was believed to have missed only one show since 1894. He had, too, a long connection with the Norwich Christmas fat cattle show, and this year's show was the first for 50 years at which he had not acted as veterinary surgeon. He had been veterinary surgeon at Norfolk point-to-point meetings and was veterinary inspector under the Diseases of Animals Acts to both the Norfolk County Council and the Norwich Corporation for many years.

In a tribute, the *Eastern Evening News* recalls that during the severe winter of 1896 he used a sleigh for six weeks to attend his cases. His main recreation in later years was bowls, and he was recently made a life member of the Victoria Bowling Club. He was also fond of shooting.

Mr. Low continued to practise until a few weeks ago. He leaves a widow and one son, Mr. H. Frederick Low, who has played cricket and lawn tennis for Norfolk. Much sympathy is extended to them in their bereavement.

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The Late Walter Ernest Ison, F.R.C.V.S.

The death of Ernest Ison, reported in our issue of December 27th, records the passing of one of our most esteemed elder members, and therewith the termination of a family's connection with a veterinary practice which has existed for the past century.

Although troubled with indifferent health for some time past, he was actively engaged until three days before the onset of the serious illness which culminated in his death in hospital. He was unmarried and is survived by two sisters, Mrs. Elizabeth Sheavyn of Nuneaton and Miss Ison, who was his constant companion for so many years, and to whom we tender our sincere sympathy.

A native of Atherstone the deceased was educated at Atherstone Grammar School and the Dick Veterinary College, Edinburgh. He had a distinguished College career, and on graduating in 1895 was awarded the FitzWygram Prize. Following a period as Lecturer in Anatomy at his College, he joined his father, William Charles Ison, in the practice at Atherstone, and in which he was to spend the rest of his life, although he had contemplated retirement in this coming March.

He was awarded his Fellowship in 1901 and in 1910 was appointed to the Court of Examiners to the Royal College as Examiner in Anatomy, in which capacity he became known to many students during the following 15 years. One of the oldest members of the Midland Counties Division of the N.V.M.A., he was a regular attender at the meetings and was a Past President of the Division. In his general practice Mr. Ison was well known in Warwickshire, Leicestershire and Staffordshire, and had many close friends in the agricultural and hunting communities. He held appointments as Local Veterinary Inspector for the Ministry of Agriculture and Fisheries and for the Warwickshire County Council from his early days in practice. In his private life he took much interest in his native town of Atherstone and was connected with many local institutions. A Freemason, he was a Past Worshipful Master of the Athelstan Lodge and held Provincial Honours.

Although always a busy man, he could still find time to indulge in his favourite recreations, which were a round of golf and a day's shooting, and during the week-end before his death he was out enjoying both these sports.

"Ison of Atherstone," writes a friend, "was a man of the highest principles, skilled in his profession, friendly and helpful to his fellow men, and those who had the privilege of knowing him will remember a professional colleague truly worthy of emulation."

There was a large gathering at the service in St. Mary's Church, Atherstone, conducted by the Rev. H. C. Manly, on December 20th. The local farming community was strongly represented and many masonic brethren of the Athelstan Lodge were present.

The following members of the profession attended: Mr. H. W. Dawes, President, R.C.V.S., and also representing the Midland Counties Division of the N.V.M.A.; Mr. W. L. Sheffield and Mr. S. V. Collard, Ministry of Agriculture and Fisheries; Major H. E. Powell and Mr. R. S. Cockburn, Coalville; Capt. W. T. Olver, Tamworth; Mr. E. Newey, Nuneaton; Capt. E. J. Burndred and Mr. E. R. Greenwood, Leicester, together with Mr. J. A. Matheson and Mr. J. Donald, Atherstone, partners with Mr. Ison.

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"Full Faculty of Veterinary Education"

Recommendation of Court of University of Wales

At its annual meeting held at Cardiff on December 19th the Court of the University of Wales voted unanimously in favour of founding a full faculty of veterinary education as a constituent school of the University of Wales.

Lord Harlech, the Pro-Chancellor, who presided, presented a report of a special committee appointed by the Court to consider a scheme for veterinary education in the Principality.

The report of the committee referred to the relative scarcity of practitioners who were able to speak Welsh and whose background and knowledge of agricultural conditions in Wales were such as to enable them to render the best service to the agricultural community in Wales.

The committee recommended that a school or institute of veterinary studies be set up within the University of Wales autonomous in both administration and finance, a university body not aligned with any of the existing four colleges within the university. As close a link as possible should be established between the new veterinary institution and the existing departments of agriculture and the extent to which collaboration with the School of Medicine in the matter of post-graduate research in particular might prove fruitful and effective should be explored.

The committee was agreed that if a veterinary school was to be instituted it was essential that the highest standards be aimed at in regard to buildings and equipment and that they be available from the outset. It declared, however, that it would be necessary to obtain an entirely new source of income, since all the present resources of the university are used to meet existing needs.

The annual cost of staff and equipment would amount to at least £40,000. The expenditure of a large capital sum would be necessary and that might on present costs be about £500,000.

The committee stated they were under the disadvantage of not knowing the terms of the proposed Government Bill, which would have to be passed by Parliament before any funds could be made available by the State for veterinary education.

As stated above, the report was adopted unanimously.

ADDRESSES OF DISEASE-INFECTED PREMISES

The list given below indicates, first, the county in which are situated the premises on which disease has been confirmed, followed by the postal address and date of outbreak.

SWINE FEVER:

Lincs. (*Lindsey*).—Church End, North Somercotes, and New Inn, Saltfleet, Louth, Lincs. (Dec. 29th); Front Street, North Somercotes, Louth, Lincs. (Dec. 31st).

SHEEP SCAB:

Brecon.—Pentrebach and Pencaeau, Cwmdu, Crickhowell, Breconshire (Dec. 31st).

Cheshire.—Moss Hall Farm, Rushton, Tarporley, Cheshire (Dec. 29th); Darley Hall, Little Budworth, Tarporley, Cheshire; Oulton Lowe Farm, Oulton Lowe, Little Budworth, Tarporley, Cheshire (Dec. 30th).

Merioneth.—Bodheulog, Cynwyd, Corwen, Merioneth (Dec. 29th).

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THOROUGHBRED BREEDING IN BRITAIN

In his address to the Thoroughbred Breeders' Association at its annual meeting on December 2nd, Lord Rosebery, the President, said he was perturbed at the Yearling Sales at Doncaster when he saw that the big prices were almost entirely for animals which had no pretence to stay more than a mile, if so far. "I cannot help thinking," he said, "it is the state of the times in which we live that is largely responsible for this. Nobody knows what is going to happen, and people are desirous of cashing in quickly with speedy two-year-olds, as they feel that if they buy animals that require time to mature, as most stayers do, something may happen in the meantime. If ever conditions become more settled I think you will see a difference.

"Breeders are in great difficulty in getting nominations to the cheaper stallions," he continued. "This is largely due to the syndication of a number of horses; but I think there are indications that these syndicates, except for high-class horses, will gradually lessen. There is, however, one aspect which has been put to me by a number of people, and that is, what is the policy of the National Stud? When Colonel Hall Walker gave the stud to the British Government it was with the view to improving and maintaining the excellence of the British thoroughbred, and the Government must be pleased and relieved to realize that this was a gift which proved wrong Mr. Jorrocks's saying, 'Confound all presents wot eat,' because the Stud has made a handsome profit during the years in which the Government has had it; but the small breeders have got nothing out of it. . . . The impression is certainly becoming stronger that the National Stud is simply being kept as a money-making business, and not for the benefit of the thoroughbred in this country. I would point out that in France the Government goes out of its way to keep stallions for the benefit of breeders. I know, of course, that Mr. Burrell cannot possibly give any answers to these remarks of mine, because he only carries out the policy of the Minister of Agriculture, and does not initiate it, but I do hope soon this Ministry will let breeders in this country know exactly where they stand, and what to expect, or not to expect, from the National Stud."

Lord Rosebery concluded by referring to the statement made on November 25th by Mr. Hall, Financial Secretary to the Treasury, that the British horse-breeding exports had earned £3m. in dollars in the first nine months of the year. "These," he said, "are most satisfactory figures, and prove what I have always maintained—that the British thoroughbred is being sought for the world over."

THE AMERICAN STUD BOOK

APPEAL FOR RECOGNITION IN ENGLAND

Mr. William Woodward, the American owner whose two-year-old colt, Black Tarquin, won the Gimcrack Stakes at the last York August race meeting, was unable to make the journey from America to be present as the principal guest at the annual dinner of the Gimcrack Club at York on Tuesday of last week. In the course of his speech, which was read by Lord Zetland, Mr. Woodward dealt with American racing and methods, and made a plea for the recognition in England of the American Stud Book.

"We feel," he said, "that our horses have been developed to a very high degree, both as to blood, conformation, speed and stamina. We believe that they are equal to any in the world, both our champion horses and our rank and file, in their class. The breeders throughout our land also believe that the time has come when the American Stud Book should be recognized throughout the world. The performance of our horses, their fine qualities, their careful breeding, and the study and devotion given to the cause by their breeders certainly warrant their recognition.

"There have been too many examples of our horses' prowess for me to burden you with a recital. We only register as thoroughbreds those foals whose parents are in the Stud Book; that also is your formula. We, however, have a 'plus,' and the 'plus' is that we recognize the General Stud Book of England, and therefore register horses imported to our country from other countries that trace directly and solely from lines in the General Stud Book as well as in the American Stud Book. We ask that you adopt a 'plus' policy by recognizing the American Stud Book."

Mr. Woodward referred in detail to the types of courses used in America, which, he said, "mostly gave the public a view of the horses during the entire race, and to the use of the photo-finish in every race. In addition there are six movie cameras situated on high towers almost invisible to the public which photograph the races as the horses head to them. This is an aid to the stewards to detect crossing and to clarify whatever controversy over a race there may be. It is well for the jockeys to know that they are being watched by something which records."

In view of the vastness of their areas and the number of horses involved, identification bureaux with veterinarians were used and Jockey Club registration certificates must follow the horse. Saliva tests were virtually universal.

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ARTIFICIAL INSEMINATION AND LINE BREEDING

"Is it possible to line-breed with A.I.?" asks the Editor of *The Farmers' Weekly* in his issue of January 2nd, and continues: "I imagine that grading up will prove so interesting to many men who use the method that they will want to go on to the more ambitious programme. At present it seems that a breeder would fairly rapidly reach the position where the only bull at his local centre would be the sire of the heifers he wished to inseminate. Conversely, there is the man who, wishing to follow a line of blood, might find that the bull he was using had become worn out and had been removed from the centre.

"A solution would be the maintenance of more than one bull of the same breed and strain at each centre, to be followed, in time, by others of the same line. But, with the difficulty of finding sires to-day, even on the present scale, it must inevitably be a long time before you can go to a centre and pick a bull like a book off a library shelf. Mr. Joseph Edwards, Head of the Department of Dairy Husbandry at the Milk Board, sees an even bigger snag than maintaining successive teams of similarly bred bulls. 'The real snag,' he says, 'is the relatively short life of the average pedigree herd. The result is that however good our intentions, we might go to a herd for line-bred replenishments only to find that it had been dispersed.'

"For the moment, at all events, it looks as though the use of a good sire is as much as we can hope for from artificial insemination without going into the refinements of pedigree breeding."

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Caponising of Cockerels by Stilboestrol Implant.—Since the publication (*Vet. Rec.* **60**. 10) of his letter on the use of diethyl-stilboestrol container, Mr. E. W. Jones, M.R.C.V.S., of Cornell, cables us that these clips are supplied by the Pitman-Moore Co., Indianapolis.

DISEASES OF ANIMALS ACTS, 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Fowl Pest	Parasitic Mange*	Sheep Scab	Swine Fever
Dec. 1st to 15th, 1947	4	—	109	—	10	—
Corresponding period in—						
1946	4	4	—	—	2	5
1945	2	2	—	—	8	15
1944	11	6	—	1	19	58
Jan. 1st to Dec. 15th, '47	115	103	2,174	1	86	34
Corresponding period in—						
1946	91	41	—	7	92	345
1945	115	127	—	6	118	906
1944	181	175	—	8	233	1,396

NOTE.—The figures for the current year are approximate only.
* Excluding outbreaks in Army Horses.